AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) ~~Probe for measuring a magnetic field comprising at least one~~ A device for analyzing an electrical current during operation, comprising:

at least one probe (12) for measuring a magnetic field comprising at least two magnetoresistive or magnetoinductive ~~sensor~~ sensors (14, 16) which [[is]] are sensitive to the magnetic field along a selected measurement axis, ~~characterised in that it comprises at least~~ said two magnetoresistive or magnetoinductive sensors (14, 16) ~~which are~~ being rigidly connected to each other in a position such that their selected measurement axes are parallel and offset relative to each other in a transverse direction relative to their selected measurement axes, ~~and in that~~ the probe ~~comprises~~ comprising output terminals which are specific to each magnetoresistive or magnetoinductive sensor in order to provide a signal which is representative of the magnetic field measured by each sensor along the selected measurement axis thereof;

a processing chain (20, 22) which is specific to each magnetoresistive or magnetoinductive sensor (14, 16);

means (24, 26) for processing the signals from the various processing chains, which processing means comprising means for evaluating a difference between the field values measured by two magnetoresistive or magnetoinductive sensors having selected measurement axes which are parallel and which are offset transversely relative to each other; and

means for evaluating a ratio between said difference and a distance separating the two magnetoresistive or magnetoinductive sensors.

2. (currently amended) ~~Measurement probe~~ The device according to claim 1, ~~characterised in that it~~ wherein the device comprises at least two pairs of magnetoresistive or magnetoinductive sensors (602, 604, 606, 608, 610, 612), the sensors of each same pair having their selected measurement axes parallel and offset relative to each other in a transverse direction relative to their selected measurement axes and the selected measurement axes of the sensors of two separate pairs are angularly offset.

3. (currently amended) ~~Measurement probe~~ The device according to claim 2, ~~characterised in that it~~ wherein the device comprises at least nine magnetoresistive or magnetoinductive sensors (1002A, 1002B, 1002C, 1004A, 1004B, 1004C, 1006A, 1006B, 1006C) which are distributed in three triplets of three sensors,

the three sensors of the same triplet having their selected measurement axes parallel and offset relative to each other in transverse directions relative to their selected measurement axes and the selected measurement axes of the sensors of separate triplets are angularly offset.

4. (currently amended) ~~Measurement probe~~ The device according to claim 3, ~~characterised in that~~ wherein all the magnetoresistive or magnetoinductive sensors (602, 604, 606, 608; 1206, 1208) of the probe are distributed in accordance with two layers (1202, 1204).

5. (currently amended) ~~Measurement probe~~ The device according to claim 4, ~~characterised in that~~ wherein the selected measurement axes of the sensors of different layers are angularly offset.

6. (currently amended) ~~Measurement probe~~ The device according to claim 5, ~~characterised in that~~ wherein the sensors (1206, 1208) of the same layer have their selected measurement axes parallel.

7. (currently amended) ~~Measurement probe~~ The device probe according claim 1, ~~characterised in that~~ wherein all the

magnetoresistive or magnetoinductive sensors (1304, 1306) of the probe are distributed on the same layer.

8. (canceled)

9. (currently amended) ~~Device~~ The device according to ~~claim 8~~ claim 1, ~~characterised in that it~~ wherein the device comprises means (26) for displaying the ratio of the difference between the field values measured by the two magnetoresistive or magnetoinductive sensors (14, 16) having selected measurement axes which are parallel and which are offset transversely at the distance separating the two magnetoresistive or magnetoinductive sensors, and in that the device is suitable for being held by hand and manually displaced.

10. (currently amended) ~~Device~~ The device according to ~~claim 8~~ claim 1, wherein the processing means are capable of evaluating, for each pair of sensors (602, 604, 606, 608), the ratio of the difference between the field values measured by two magnetoresistive or magnetoinductive sensors having selected measurement axes which are parallel and which are offset transversely to the distance separating the two magnetoresistive or magnetoinductive sensors and the processing means are capable of calculating at least one component of the current from the difference between the evaluated ratios.

11. (currently amended) ~~Device~~ The device according to claim 10, ~~characterised in that it~~ wherein the device comprises means (26) for displaying at least one calculated component of the current, and in that the device is suitable for being held by hand and manually displaced.

12. (new) The device according to claim 1, wherein the two sensors are arranged on an integrated circuit.

13. (new) The device according to claim 1, wherein the device comprises means for supplying a sinusoidal signal of a predetermined frequency to each magnetoresistive or magnetoinductive sensor, the processing chain comprising an isolation means of a band pass type centered on a predetermined frequency.

14. (new) The device according to claim 1, wherein said ratio is a current value flowing in an electrical circuit in a first direction, the field values being the field values of magnetoresistive or magnetoinductive sensors having selected measurement axes extending along a second direction, the second direction being perpendicular to the first direction.

15. (new) The device according to claim 1, wherein a value of current Jy flowing through an electrical circuit in a direction Y-Y is based on a ratio:

$$\frac{dB_x}{dz} = \frac{B_{x2} - B_{x1}}{z_2 - z_1},$$

where B is the magnetic field, X_2 and X_1 are positions of components of the magnetic field along axis X-X, and Z_2 and Z_1 are positions of the sensors 14 and 16 along axis Z-Z.